AN ANALYSIS OF MOTIVES AND EFFECTS
OF STOCK SPLITS

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OF STOCK SPLITS

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CHAPTER I

INTRODUCTION

Statements are often made concerning the motives and effects of stock splits without the speaker having anything more than an intuitive idea as to what the actual motives and effects really are. It is the purpose of this study to examine a selected group of securities that were recently split. By analyzing the motives and effects of these splits, it is hoped that the thinking of investors and corporations will be guided by hypotheses that have been empirically tested.

Organization of the Paper

The paper is divided into five chapters. In Chapter I the purpose of the study is stated, a definition of a stock split is given, and some of the mechanics involved in order to effect a stock split are explained.

In Chapter II there is a review of the literature. Several studies dealing with stock splits are examined. In Chapter II the methods and materials used in carrying out the study are given along with a list of the hypotheses to be tested, and some limitations of the study.

In Chapter III the statistical data collected are classified and the principle motives for a stock split are analized. In Chapter IV the effects of the stock split are illustrated. Chapter V is a summary chapter in which the conclusions observed in the body of the paper are listed.

Stock Split

In the course of this study, frequent reference is made to the term "stock split". A "stock split" is simply an increase or decrease in the number of a company's shares by some multiple or ratio.[1] A stock split is accomplished in several different ways.[2] The par value of the stock may be reduced. A reduction of par value from twenty dollars to ten dollars would be a two for one split. The aggregate amount shown in the capital stock account on the balance sheet would remain the same if this method were chosen.

A second method for splitting stock would be the issuance of a larger number of no par shares to replace either par or no par shares outstanding. This method also does not involve an increase in the aggregate amount shown in the capital stock amount. A third method for effecting a stock split is the payment of a stock dividend. The New York Stock

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[1]Fred L. Garcia, ed., Encyclopedia of Banking and Finance, by Glenn G. Munn (Boston, 1962), p. 697.

[2]B. Graham, D. L. Dodd, and S. Cottle, Security Analysis - Principles and Techniques (New York, 1962), p. 496.

Exchange has ruled that if a stock dividend amounts to 25 per cent or more of the number of shares outstanding prior to the stock dividend, the dividend will be considered a stock split.[3] The payment of a stock dividend involves the reduction of the paid in surplus or retained earnings account and an increase in the capital stock account by an amount equal to the fair value of the shares. A company may choose a combination of the above mentioned alternatives in splitting its stock, however, this procedure is rare.

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[3] Elvin F. Donaldson and John K. Pfahl, <u>Corporate Finance</u> (New York, 1963), p. 624.

CHAPTER II

REVIEW OF THE LITERATURE

Several definitive studies about stock splits have been made. One of the earliest and most authorative studies was conducted by James C. Dolley.[1] He described the procedures, motives and effects of common stock splits by analyzing 174 stock splits that occurred over a ten-year period, 1921-1930. Dolley, however, experienced some difficulty with collection of data as evidenced by this paragraph:

> In many cases, the manuals failed to report stock histories for the entire decade. Other splits, doubtless, were inadvertently overlooked in checking through stock records. Some difficulty was experienced in distinguishing between stock dividends and stock splits, because the manuals often reported a stock dividend as a split and vice versa. Much greater difficulty was encountered in attempting to separate the true split ups from the numerous recapitalization plans involving a multiplication of shares outstanding. The sample, as finally constituted, included 174 splits. Of these, it proved impossible to secure the necessary price quotations on 70 stocks.[2]

Despite the difficulties that Dolley encountered in collecting

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[1] James C. Dolley, "Characteristics and Procedure of Common Stock Split Ups", Harvard Business Review, April 3, 1933, p. 316.

[2] Ibid., p. 317.

data, he was able to use what data he had to clearly show what the major motives and effects of stock splits were. Many of the hypotheses which he tested are to be tested again to see if they are applicable to the 1963-1964 period.

Another study analyzing both the motives and effects of stock splits was conducted by Bellemore and Blucher.[3] These two researchers analyzed stock splits in the post World War II period of 1946 through 1956. They concluded that:

> Regardless of price considerations, shareholders in a company which has split its stock under favorable and rewarding conditions benefit in the long run from the resulting improvement in their company's position, be it through a wider distribution of share ownership, stabilization of control, more satisfactory public relations or any other advantages which may accrue to the company.[4]

This conclusion indicates that stockholders can benefit from a stock split if the motives and timing of management are sound and correct. Therefore, a stock split not only increases or decreases the number of a company's shares but may also give added value to the new shares. This value may take a material form such as an increase in market price or an intangible form such as more satisfactory public relations.

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[3]Douglas H. Bellemore and Lillian H. Blucher, "A Study of Stock Splits in the Post War Years", The Analysts Journal, November, 1959, pp. 19-26.

[4]Ibid., p. 25.

Two Price Level Studies

The effect of a split on the market price of the stock is of primary interest to investors and managers of portfolios. Myers and Barkay[5] analyzed the 1945 to 1946 market to examine the premise that a split influenced the market price of the security. The authors felt that Dolley's study had used an extremely short time interval for observing the effect of a split on the price of the security.[6] Dolley compared only the price change occurring between the last trading day of the old securities and the first trading day of the new securities in concluding that: "A positive price effect can be expected from a split, about twice as often as a negative price effect and that about 65 per cent of all effects will amount to two points or less either way."[7]

Myers and Barkay tried to correct for the short time interval used by Dolley by measuring price variations of seventy stocks from a base date eight weeks before formal announcement of a split was made.[8] The base date price and the split date price were expressed as a ratio of a selected

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[5] John H. Myers and Archie J. Barkay, "Influence of Stock Split Ups on Market Price", Harvard Business Review, March, 1948, pp. 251-255.

[6] Ibid., p. 251.

[7] James C. Dolley, "Common Stock Split Ups - Motives and Effects", Harvard Business Review, October, 1963, p. 80.

[8] Myers and Barkay, p. 251.

market average in order to adjust for the general influence of the current market movement.[9] The authors also studied price variations for an eight week period after observing the split to ascertain whether the previously discovered effect of the split was not transitory in nature.[10] Myers and Barkay concluded that:

> At least in the short run, the decision of a company to propose a split of the common shares is favorably regarded...and the slight tendency in some of the cases for the price of the split stock to react adversely in the eight weeks following the split up was possibly only the result of an overbullish initial action.[11]

Another study which examined price level fluctuations was conducted by Papera and Kimball[12] who examined 28 common stocks which were split during the first half of 1961. They wanted to determine the effect of the stock splits on short-term market prices. In order to compare the performance of the securities that were split, the writers chose eleven control stocks on the basis of similarity in product, size and industry to use as a comparison.[13] The authors stated that:

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[9] Ibid., p. 252.

[10] Ibid.

[11] Ibid., p. 255.

[12] Peter Kimball and Robert Papera, "Effect of Stock Splits on Short Term Market Prices", Financial Analysts Journal, May-June, 1964, p. 75.

[13] Ibid., p. 79.

> Many problems arose in making such selections; few companies have the same product mix even though they may be classified as part of the same industry. Product differentiation, patents, market position, reputation, stockholder composition, breadth of market and changes in earnings or dividends are all factors that could well distort the comparability of the control stocks and the 28 stocks which split.[14]

Their conclusion was that stock splits were followed by a favorable market reaction in a majority of cases but that the short time period of the study made it virtually impossible to make a general statement that these results will occur in each and every year in which stock splits take place.[15]

The above mentioned studies have been useful in providing statistical models for classifying data, and for illuminating the results gained from testing several significant hypotheses. It is interesting to note that for the most part, the results achieved from retesting many of the same hypotheses have been significantly alike even though the time periods and the size of the samples have varied considerably. It is believed that the motives and effects of stock splits have varied little from the early 1900's to the present.

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[14] Ibid.

[15] Ibid., p. 80.

METHOD AND PROCEDURE

In order to analyze the motives and effects of stock splits, a selected sample of twenty-six industrial securities which had been split in 1963 or 1964 were chosen for study. The price and volume variations of the split securities were charted for a three-month period before their effective split date, and then for a three-month period after their split date.

For measuring the effect of a split on the price of a stock, the Dow Jones Industrial Average was selected in order to correct for general swings in the market. These averages were chosen because of their wide-spread use as indicators of market activity, and also because they are a satisfactory representation of the industrial stock market. The thirty securities in the average, account for about eleven per cent of the total industrial shares traded on the New York Stock Exchange. Their aggregate value is nearly one third of the total value of all stocks listed.[16]

The Dow Jones Industrial Average was employed in this manner; assume one of the stocks in the selected sample had a price increase of 10 per cent on announcement date compared

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[16] Hartman L. Butler, Jr. and Martin G. Decker, A Security Check on the Dow Jones Industrial Average Readings in Financial Analysis and Investment Management, ed. by Eugene M. Lerner. (Homewood, Illinois, 1963), p. 96.

to the previous week's price. If the market was rising, one would conclude that part of this increase was due to normal market fluctuations. In order to account for this, the stock's increase or decrease was netted against an increase or decrease in the Dow Jones Industrial Average for the same time period. If the Dow Jones Industrial Average rose 5 per cent from the past week, then this 5 per cent was subtracted from the stock's 10 per cent increase and the net of 5 per cent was chosen to represent the effect of the split on the price of the stock. The entire 5 per cent net figure is not to be viewed as wholly attributable to the stock split. Many other factors can, and often do, enter into the picture. These factors, such as news of a beneficial nature, are for the most part qualitative and are not measurable.

Only industrial securities listed on the New York Stock Exchange were picked for the sample. This was done in order to facilitate the gathering of price and volume data.

Materials

A mail questionnaire soliciting information about the primary and secondary motives for splitting, announcement dates, and the success of the specific splits was sent to the treasurers of the twenty-six companies whose securities constituted the sample. The sample consisted of a selected group of industrial securities which were split in 1963 and 1964. Twenty-two corporations answered the questionnaire for an 84.6 per cent response. All of the answering treasurers felt that their specific splits had been successful. They gave a wide range of answers for the secondary motives they had for splitting, but they all agreed on what their primary motive for splitting had been. Actual price and volume fluctuations and fluctuations of the Dow Jones Industrial Average were secured from the financial magazine, Barrons National and Financial Weekly.

Hypotheses to be Tested

The remainder of the paper is divided into two parts. The first part, Chapter III, deals with the motives that managements have for making a decision to split their stock. The second part, Chapter IV, analyzes the effects of stock splits. The hypotheses to be tested in Chapters III and IV are:

1. An "optimum price range", which many managements feel it is to their advantage to have their stock traded in, does exist. This range is from $20 to $45.
2. The primary motive that management has for splitting its stock is the reduction of the price of the stock in order to facilitate a broader market for the security.
3. The announcement of a stock split will almost invariably lead to an increase in the number

of shares traded in the security when the split is announced.

4. When a stock is split, a marked increase in the number of shares traded will almost invariably result in the short run, but the increase is not necessarily proportionate to the split ratio of the security.
5. When a stock is split, the absolute amount of dividends received will almost invariably be increased when news of the split is announced or shortly thereafter.
6. The price of a stock will almost invariably be increased due to an increase in demand for a security when news of a split is announced.
7. There is a high probability that a stock split is a factor in facilitating price appreciation for the new securities in the short run.

Limitations of the Study

The paper analyzes the fluctuations of twenty-six securities for a period of six months. This time period is too short to allow for the derivation of any conclusions concerning the long-run effects of a stock split. Long-run conclusions would be difficult to draw under any conditions because too many qualitative and immeasurable factors merge to give us the overall effect of a stock split.

The 1963 and 1964 market was a bull market which was evidenced by the fact that the Dow Jones Industrial Average rose 124½ points during the time period under consideration. Therefore, the study cannot divulge any conclusions concerning the effects of stock splits in bear markets. Undoubtedly, other limitations exist, but for all of them, it is believed that the paper, through an empirical analysis of the collected data, can clarify and crystalize many of the intuitive ideas that people hold concerning stock splits.

CHAPTER III

MOTIVES FOR USING STOCK SPLITS

The first part of this chapter deals with the classification of data concerning stock splits. The second part is devoted to the motives that managements have for splitting their stock.

Data Classification

As mentioned before, the sample consisted of a selected group of twenty-six industrial securities that were split in 1963 or 1964. Nine securities were chosen that split in 1963, and seventeen that split in 1964. The securities, which constituted the sample, along with the split ratios, the effective split dates, and the announcement dates are listed in Table I. The stock dividend method of effecting a stock split was used in 10 cases. Two for one and three for one stock splits were effected by using 100 per cent and 200 per cent stock dividends. The smallest split ratio was three for two which was used three times, and the largest ratio was three for one which was used five times.

The amount of time between announcement date, and the effective split date for a security varied from a low of 11

TABLE I

SECURITIES IN THE SAMPLE, AND THE SPLIT RATIOS, ANNOUNCEMENT DATE, AND EFFECTIVE SPLIT DATE

Company	Split Ratio	Effective Split Date	Announcement Date
Bristol Myers	100%	Oct. 7, 1963	Aug. 12, 1963
Campbell Soup	3 for 1	March 10, 1964	Dec. 30, 1963
Carter Products	200%	March 20, 1964	Feb. 3, 1963
Catepillar Tractor	100%	July 3, 1964	Apr. 6, 1964
Chrysler Corporation	2 for 1	Dec. 20, 1963	Oct. 28, 1964
Consolidated Cigar	100%	Dec. 3, 1963	Oct. 21, 1964
Distillers Corp. - Seagrams	2 for 1	Nov. 25, 1964	Sept. 28, 1964
Dr. Pepper	100%	March 25, 1964	Jan. 24, 1964
Electric Storage Battery	3 for 2	Oct. 2, 1963	Sept. 12, 1963
Falstaff Brewing Company	100%	Dec. 21, 1964	Oct. 5, 1964
Gerber Products Company	2 for 1	July 31, 1964	May 11, 1964
Greyhound Corporation	2 for 1	June 15, 1964	Feb. 25, 1964
Kellogg Company	100%	Aug. 19, 1963	June 24, 1963
Macy (R.H.)	2 for 1	Nov. 13, 1964	Sept. 28, 1964
McCall Corporation	3 for 2	Dec. 3, 1963	Sept. 30, 1963
Purolator Products	3 for 1	Sept. 25, 1963	July 1, 1963
Radio Corp. of America	3 for 1	Jan. 31, 1964	Dec. 9, 1963
Rexall Drug and Chemical Co.	2 for 1	Dec. 22, 1964	Nov. 12, 1964
Safeway Stores	100%	Nov. 23, 1964	Nov. 12, 1964
Sherwin Williams	2 for 1	Dec. 9, 1964	Oct. 26, 1964
Talon, Inc.	2 for 1	June 30, 1964	Apr. 20, 1964
Trane Company	100%	Oct. 15, 1964	Aug. 10, 1964
U. S. Plywood	100%	May 20, 1964	March 16, 1964
Walgreen Company	2 for 1	Sept. 18, 1963	Aug. 5, 1963
Wickes Corporation	2 for 1	Oct. 24, 1963	Aug. 26, 1963
Youngstown Sheet and Tube Company	3 for 1	Feb. 20, 1964	Feb. 2, 1964

days to a high of $3\frac{1}{2}$ months. The modal waiting time was approximately two months. The securities were split in every month of the year except April.

Level of Split Ratio

Dolley's study of the 1921 through 1930 period showed that 74.2 per cent of the securities in the sample has a split ratio of greater than two for one. The most popular split ratio in that time period was the four for one split which consitituted 34.4 per cent of the sample. Five for one splits were not uncommon and made up 12.6 per cent of the total.[1] The use of five for one and four for one splits by corporations at this time was due to the fact that the securities that were split were trading at higher prices. For securities to be traded in the "optimum price range", higher multiples than are now normally used to secure that range had to be utilized. The "optimum price range" is that range which many managements feel it is to their advantage to have their securities consistently traded in. More will be said about the "optimum price range" later in the paper.

The Bellemore and Blucher study analyzing the 1945-1956 market showed that 58.8 per cent of the splits were for a two for one ratio. The three for one ratio was second in

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[1]Dolley, Common Stock Split Ups - Motives and Effects, p. 71.

importance and accounted for 18.4 per cent of the total.[2] From Table II it is seen that, in the 1963-1964 market, 73 per cent of the securities were split two for one. This is 13.2 per cent higher than the 1945-1956 market. Still second in importance compared to the Bellemore and Blucher study was the three for one split which consitituted 19.3 per cent of the sample. The use of the two for one split ratio as the dominant multiple would indicate that corporations are splitting their stocks at much lower prices.

TABLE II

A CLASSIFICATION OF THE SPLIT RATIOS OF THE SECURITIES IN THE SAMPLE

Split Ratio	Number in Category	Per Cent of Total
3 for 3	2	7.7%
2 for 1	19	73.0%
3 for 1	5	19.3%
	26	100%

Price Level Prior to Split

The market price of the securities prior to split date is given in Table III. It would seem plausible to hypothesize that securities are split because they are being traded in

[2]Bellemore and Blucher, p. 23.

excessively high price ranges. In Table III, 69 per cent of the securities had a price of $55 or more prior to the time they split. Investors like to trade in round lots. There is a savings in commission by doing so and it also seems more psychologically satisfying to transact purchases in round lots.[3] It seems logical then that managements who want to attract small investors will want their securities to be traded in lower price ranges, and as the price of the securities becomes prohibitive, the security will be split.

TABLE III

A CLASSIFICATION OF THE SECURITIES ON THE BASIS OF THEIR MARKET PRICES THREE MONTHS PRIOR TO SPLIT UP

Market Price Prior to Split		Number of Stocks	Percent of Total
Under $55		8	30.7
Over $55	Under $60	3	11.5
Over $60	Under $70	2	7.7
Over $70	Under $80	6	23.0
Over $80	Under $90	2	7.7
Over $90	Under $100	1	3.8
Over $100		4	15.3
		26	99.7%

[3]Ernest W. Walker and William H. Baughn, Financial Policy and Planning (New York, 1961), p. 266.

Price Level After the Split

If a company's stock is selling in a high price range, which is believed to be any price higher than $45, and the decision is made to split the stock, a decision must also be made as to what is the optimum price level to be trading in after the split. In Table IV, it is shown that 96 per cent of the selected securities would be traded in the $20 to $55 price range after the split and that 88.3 per cent would be traded in the $20 to $45 price range.

TABLE IV

A CLASSIFICATION OF THE SECURITIES ON THE BASIS OF THEIR MARKET PRICES DIVIDED BY THE SELECTED SPLIT RATIOS, THREE MONTHS PRIOR TO SPLIT UP

Price Range of the Stocks Divided by the Selected Split Ratios Prior to Split Up	Number in Group	Percent of Total
Under $20	1	3.8
$20 to $25	7	26.9
$25 to $35	8	30.7
$35 to $45	8	30.7
$45 to $55	2	7.7
Over $55	0	0.0
	26	99.8%

Primary Motive for Splitting

It is now possible to examine the motives behind splitting a stock. There are a proliferation of reasons why a company may want to split its shares. Graham, Dodd and Cottle in their authoratative book, Security Analysis, feel that the only legitimate reason for a stock split is to reduce the price of shares so that the stock becomes more attractive to the investing public.[4] There seems to be an intuitively correct concept that an "optimum price range" for a stock to be traded in does exist. By trading in this range, a company appeals to a maximum number of investors. This facilitates management in achieving the goal of attaining the widest distribution of ownership possible. Wide distribution is important in stabilizing price movements and adding marketability to a security.

In response to a mail questionnaire given in Appendix B asking, "What was the primary reason for splitting?", all of the companies replied that their primary motive for splitting was to reduce the price level of their securities in order to broaden their market to achieve greater marketability. This response confirmed the hypothesis that the primary motive for splitting a stock is to reduce the price of the shares in order to facilitate a broader market for the security.

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[4] B. Graham, D. L. Dodd and S. Cottle, Security Analysis Principles and Technique, 4th ed., (New York, 1962), p. 497.

The second hypothesis to be tested is that an "optimum price range" does exist. In Table III, it is shown that the majority of stocks were trading above $55 before they split; while in Table IV it is shown that a majority of the stocks would be trading in the $20 to $45 price range after the split. Thus, the $20 to $45 price range seems to be the "optimum price range" for the securities used in this sample. This range coincides with the range that the authors of Security Analysis give as the optimum range.[5]

It is believed that a price much above $45 prohibits many investors from buying round lots. A price much below $20 detracts from the quality of the stock, many times this is based on psychological motivation. Cheaper securities are looked upon as being of a speculative nature, and they are often shunned by investors. Many exceptions about trading outside the "optimum price range" do exist. Some companies do not want a wide distribution of ownership, however, corporate managements that want wide distribution must take the "optimum price range" into account because the investing public places advantages on this factor.[6]

Secondary Reasons for Splitting

Numerous other motives for splitting were advanced by

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[5]Ibid.

[6]Walker and Baughn, p. 267.

management in response to question two asking for secondary reasons for splitting the stock. They are as follows:

1. The company splits to increase dividends without substantially increasing the dividend rate. Greyhound Corporation and Safeway Stores advanced increased dividends as secondary reasons for splitting.
2. To prepare for future financing. A company which is planning for the sale of a new issue of stock to the general public or on a priviledged subscription basis, may split the shares making them attractive to new investors. This will give them a wider market in which to sell the new issue.
3. To prepare for new acquisitions. R. H. Macy reported that the corporation from time to time investigates the desirability of acquiring other businesses, and it is possible that some investigations might lead to acquisitions that would involve the issuance of common shares. The board of directors, therefore, felt that it was in the best interests of the corporation to increase the number of authorized common shares to 10,000,000. After the split, there were 5,286,694 unissued and unreserved shares available for issuance by the board for

any acquisitions or for any such other corporate purposes as may be deemed advisable.

The Campbell Soup Company also advanced as one of their reasons for splitting, the fact that their shares would be increased from 12 million to 40 million, and the additional stock would be made available for any proper corporate purpose without future action by stockholders.

4. To avoid reporting excessively large earnings per share. This is a defensive measure by a firm to keep other firms from entering an industry until the firm in the field has established its goods in the market place. Low earnings per share may be used as an argument in dealing with labor union demands for higher wages.

5. Moral suasion, by the New York Stock Exchange. The Exchange will suggest the advisability of an informal meeting to discuss the advantages of a stock split to most companies with stable earnings and growth rates whose stock passes the one hundred dollar mark and looks like it will stay there.[7] The Big Board feels that

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[7] "Are Stock Splits Really Necessary?", Forbes, September 15, 1963, p. 15.

it is to the advantage of the company and the exchange to have the stock traded in the twenty to forty-five dollar "optimum price range".

6. Stockholders satisfaction. Most stockholders apparently like stock splits. Investors feel that they are getting something for nothing, and this makes the investors receptive to management policy. In some cases, stockholders actually may get something for nothing because increased demand for the stock may push the price of the shares up. This appreciation in the price of the stock may be of a lasting nature, and the stockholder may have actually received tangible price appreciation due to the split.

7. Advertising value. The widest possible distribution of shares and a broad market accruing from trading in the "optimum price range" may have some advertising value. Chrysler Corporation advanced as a secondary reason for splitting the fact that they wanted a broader market for their products. They felt that a consumer will be more likely to purchase a Chrysler automobile rather than a competitor's car if he owned stock in Chrysler Corporation. The extent of the advertising value is not

measurable.

8. Increased activity. Sherwin Williams Corporation and Wickes Corporation said that one of the reasons that they split was to produce more activity in the number of their shares traded on the New York Stock Exchange. Both companies did experience volume increases after the split.

CHAPTER IV

EFFECTS OF A STOCK SPLIT

Chapter IV deals with the effects of a stock split on a security's volume, dividends after the split, and the effect of the split on the price of the security.

Increased Volume

The next hypothesis to be tested is that the announcement of a stock split will almost invariably lead to an increase in the number of shares traded in the security when the split is announced.

The volume of trading for two weeks before and two weeks after announcement date is given in Table V. When news is released that management is seeking approval to, or is going to split its stock, investor interest in the security is heightened. This point is found to be true from an examination of Table V. The volume for nineteen securities was higher on announcement date compared to volume two weeks before. Volume for five securities was lower, ranging from 500 shares lower to 5000 shares lower. The information for two securities was not available, because this information was not in the six month time period for which data was collected.

The volume on announcement date was higher for twenty-five of the twenty-six securities compared with trading one week before announcement date. The increases ranged from an 800 share increase for Campbell Soup to a 714,000 share increase for Chrysler Corporation. One security, Trane Corporation experienced a 200 share decline.

One half of the securities had 100 per cent or more increases in volume on announcement date compared to volume one week before. For 96.1 per cent of the securities, volume decreased the week following the announcement of the split. An exception to this was Safeway Stores which sustained increased trading until the second week after the announcement date and then declined. Of the securities that experienced decreases, 42.3 per cent had 100 per cent or more decreases in volume. These figures tend to confirm the fact that announcement of a split increases investor interest and the greater demand for the security results in increased volume. The amount of increased volume is not uniform, but it depends greatly on market evaluation of the particular security. These figures also reveal that volume declines almost immediately after announcement date. This is probably due to the fact that the increased demand has driven price up so investors who had not purchased shares early, were now unwilling to pay a higher price.

TABLE V

THE VOLUME OF TRADING IN ROUND LOTS TRADED ON THE NEW YORK STOCK EXCHANGE BEFORE AND AFTER ANNOUNCEMENT DATE

Company	Two Weeks Before	One Week Before	Announcement Date	One Week After	Two Weeks After
Bristol Myers	85	113	144	92	54
Campbell Soup	51	72	80	36	115
Carter Products	157	312	380	89	122
Catepillar Tractor	N.A.	304	511	257	357
Chrysler Corporation	2446	6560	13704	5065	3070
Consolidated Cigar	80	88	204	49	40
Distillers Corp. - Seagrams	38	53	83	44	57
Dr. Pepper	139	32	115	55	84
Electric Storage Battery	17	9	86	40	135
Falstaff Brewing Company	87	75	82	71	36
Gerber Products Company	34	22	75	58	55
Greyhound Corporation	163	178	269	184	281
				W.I. 29	W.I. 72
Kellogg Company	51	30	121	37	34
Macy (R.H.)	22	44	60	26	38
McCall Corporation	17	25	57	36	25
Purolator Products	N.A.	48	217	36	36
Radio Corp. of America	4042	3347	5904	1884	1762
Rexall Drug and Chemical Co.	344	197	304	204	160
Safeway Stores	148	103	246	490	62
			W.I. 1	W.I. 54	W.I. 22
Sherwin Williams	67	47	98	40	37
Talon, Inc.	104	61	114	82	35
Trane Corporation	58	44	42	23	31
U. S. Plywood	177	70	122	112	67
Walgreen Company	33	11	117	94	58
Wickes Corporation	32	19	88	47	32
Youngstown Sheet and Tube Co.	151	217	441	138	113
			W.I. 52	W.I. 85	W.I. 41

Short Run Effect on Volume

As stated before, the primary reason that most companies split their stock is to reduce the price of the shares in order to broaden their market. One indication that corporations have accomplished these objectives is increased volume of trading. When prices are lower, the stock appeals to a larger number of investors. A higher volume of trading indicates that more investors are buying and selling the stock.

In Table VI, average weekly volume for each security in the sample is given for three months before split date and for three months after split date. The volume of trading in these two time periods is compared in order to test the hypothesis that a marked increase in the number of shares traded will almost invariably result in the short run, but not necessarily in proportion to the split ratio of the security.

Eleven of the corporations in the sample experienced 100 per cent increases in weekly volume after the stock split. Reductions in the price of the shares brings the security into the "optimum price range" where it appeals to a wide market. Demand for the security is increased, therefore, distribution is broadened. Table VI shows that Talon Incorporated had a 38 per cent average weekly increase in the number of shares traded after the split. The treasurer of Talon Incorporated, stated that the number of stockholders

TABLE VI

A COMPARISON OF THE AVERAGE WEEKLY VOLUME IN HUNDREDS FOR THREE MONTHS BEFORE AND THREE MONTHS AFTER THE EFFECTIVE SPLIT DATE

Company	Volume Before	Volume After	Increase (Decrease)
Bristol Myers	98	201	103
Campbell Soup	73	199	126
Carter Products	176	189	13
Catepillar Tractor	356	750	394
Chrysler Corporation	6491	4947	(1544)
Consolidated Cigar	74	319	245
Distillers Corporation - Seagrams	35	46	11
Dr. Pepper	60	95	35
Electric Storage Battery	82	69	(13)
Falstaff Brewing Company	50	95	45
Gerber Products Company	39	69	30
Greyhound Corporation	276	439	163
Kellogg Company	69	88	19
Macy (R.H.)	34	110	76
McCall Corporation	31	36	5
Purolator Products	50	100	50
Radio Corp. of America	3150	3795	645
Rexal Drug and Chemical Co.	227	491	264
Safeway Stores	166	396	230
Sherwin Williams	45	164	119
Talon, Inc.	55	76	21
Trane Company	46	68	20
U. S. Plywood	97	161	64
Walgreen Company	45	37	(8)
Wickes Corporation	24	102	78
Youngstown Sheet and Tube Company	181	462	281

in the company had increased by four hundred after the split.

Three companies had decreases in volume after the split. Walgreens suffered an 800 share per week decrease, Chrysler, a 154,400 share decrease, and the Electric Storage Battery Company, a 1300 share decrease. Possibly, one reason why Walgreens did not experience increased volume was because it reported lower earnings after the split. Another interesting fact is that Walgreens was already trading in the "optimum price range" prior to the split. The 1963 high never went above forty nine and a half dollars per share. The stock split two for one and traded in the twenty to twenty-five dollar zone after the split. Thus, it appears that since it was already in the "optimum price range", falling into a lower range had an adverse effect. The split may have caused investors to feel that the security was no longer of the same investment quality.

Chrysler Corporation, on the other hand, enjoyed an extremely large volume of trading before the split. It was consistently one of the ten most actively traded stocks on the New York Stock Exchange. During announcement week, over one and one quarter million shares changed hands. All of this large volume was probably due to Chrysler's comeback in the automobile industry. Under the management of J. Lynn Townsend and George Love, Chrysler had experienced a great increase in sales and earnings. Investors were eager to buy shares in the company. After the split, the volume may have decreased because this was the second stock split in one year for Chrysler. The stock had split two for one on April 19, 1963, and on December 20, 1963.

In the case of the Electric Storage Battery Company, it too was already trading in the "optimum price range", consequently, the three for two split did not arouse an increased demand and volume remained about the same. It is interesting to note that since Walgreens and Electric Storage Battery were trading in the "optimum price range" before they split, they really did not seem to have a valid reason for splitting their stock. The companies were already appealing to a broad market, and the split was not able to aid them in appealing to an even broader one.

The reader may have already hypothesized that if a stock is split two for one and if price is reduced by approximately one half, then volume should double. A hypothetical investor who is considering an investment of $2000 in a stock would probably invest the $2000 regardless of whether he received one hundred shares of stock or two hundred shares. Of the nineteen securities that were split two for one, only eight or 42.1 per cent experienced 100 per cent average weekly increases. Of the five securities that were split three for one, not one security had increased volume proportionate to the three for one split ratio. The same holds true for the two securities that were split three for two. Of the total securities that were split only 30.8 per cent had increases in volume, proportionate to the split ratios.

These figures in themselves are not conclusive evidence that the increased volume for securities would not be proportionate to the split ratios because price appreciation on the new securities has not been taken into account. The tendency though seems to be that the increase in volume will not be in proportion to the split ratio. It is believed that some investors prefer to buy a specific number of shares regardless of the cost in terms of investment funds.

Level of Dividends

Another hypothesis to be tested is if a stock is split, the absolute amount of dividends received will almost invariably be increased. From Table VII, it is shown that the absolute amount of dividends received after adjustment for the split had increased for all twenty-six securities when the respective companies announced that their securities were to be split. The good news of increased dividends helps to facilitate bullish activity and elicits a good reception on the part of the stockholders. Bullish activity may also be facilitated by other news such as that of continued growth on the part of the company or increased earnings.

Effect on Price Level

Of primary interest to investors and management alike,

TABLE VII

A COMPARISON OF THE ANNUAL DIVIDEND RATE BEFORE AND AFTER THE STOCK SPLIT

Company	Per Share Annual Dividends Before Split	Adjusted Dividends After Split	Change Increase (Decrease)
Bristol Myers	$1.40	$1.60	$ .20
Campbell Soup	2.20	2.40	.20
Carter Products	1.00	1.20	.20
Catepillar Tractor	1.20	1.60	.40
Chrysler Corporation	1.00	2.00	1.00
Consolidated Cigar	1.20	1.60	.40
Distillers Corporation - Seagrams	1.80	2.00	.20
Dr. Pepper	1.00	1.20	.20
Electric Storage Battery	2.20	2.40	.20
Falstaff Brewing Company	1.40	1.52	.12
Gerber Products Company	1.30	1.40	.10
Greyhound Corporation	1.30	1.60	.30
Kellogg Company	1.40	1.60	.20
Macy (R.H.)	2.20	2.40	.20
McCall Corporation	.50	.60	.10
Purolator Products	2.00	2.40	.40
Radio Corp. of America	1.40	1.80	.40
Rexall Drug and Chemical Co.	.50	.60	.10
Safeway Stores	1.80	2.00	.20
Sherwin Williams	3.00	3.40	.40
Talon, Inc.	1.40	1.60	.20
Trane Corporation	1.00	1.20	.20
U. S. Plywood	2.00	2.40	.40
Walgreen Company	1.60	2.00	.40
Wickes Corporation	1.00	1.20	.20
Youngstown Sheet and Tube Company	5.00	5.40	.40

is the effect of a stock split on the price of a stock. The hypothesis to be examined here is that the price of a stock will almost invariably be increased due to an increase in demand for a security when news of a split is announced. In order to measure the effect of a split on the price of a stock, two periods were selected. Period one consisted of the last price quoted on the New York Stock Exchange for a security one week before the announcement of a stock split, and the last price quoted for the week when the split was announced. In an effort to adjust for normal market fluctuations, the Dow Jones Industrial Average was chosen to represent the market. The percentage change in price from one week before the announcement to the day the split was announced was then compared to the percentage change in the Dow Jones Average for the same period and the net effect was noted. For example, if a stock increased two per cent in period one and the Dow Jones Industrial Average increased one per cent, then the one per cent increase in the Dow Jones Average was subtracted from the two per cent increase in the price of the stock to give a net effect of one per cent. If the stock rose two per cent and the Dow Jones Industrial Average decreased one per cent during the same time period, then the net effect was found by computing the sum of these two figures, three per cent and vice versa for a stock decrease and a Dow Jones increase.

It is obvious that the Dow Jones Industrial Average does not represent the market, but it is believed that it constitutes a good sample and can be of use in analyzing market fluctuations. The Dow Jones Industrial Average is accepted by many investors as an indicator of market activity. The securities in the Dow Jones Industrial Average account for about eleven per cent of the total industrial shares traded on the New York Stock Exchange. Their aggregate value is nearly one third of the total value of all the industrial stocks listed on the New York Stock Exchange.[1]

It is equally obvious that individual securities traded on the New York Stock Exchange do not necessarily rise when the market rises and do not decrease when the market decreases. When this does occur, these increases and decreases are rarely equivalent to market increases and decreases. Thus, in an effort to compensate and adjust for normal market fluctuations in order to arrive at the "most likely" effect on the price level of a security attributable to the stock split, the use of the Dow Jones Industrial Average probably over compensated in some cases and under compensated in others.

It should also be noted that there are many other variables influencing stock fluctuations. These variables are to a large extent immeasurable; consequently, the net effect observed in this study is by no means a pure effect, but it

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[1] Butler and Decker, p. 96.

is believed there is a high probability that the use of the Dow Jones Industrial Average will give a better idea as to the actual influence of the stock split on the price of the stock.

In the second period, the date three months after effective split date was chosen, and the last price quoted on the New York Stock Exchange for that week was recorded. This price was compared to the price of the stock when the split was announced and also to the price of the stock three months before the effective split date. Both of the latter two dates were adjusted for the stock splits. An effort was made to see if the price of the securities after the split was higher than the prices when the split was announced and three months before effective split date.

In Table VIII, twenty of the twenty-six stocks showed net increases after adjustment for market fluctuations in period one. Increases varied from a .12 per cent increase for Campbell Soup Company to a 16.92 per cent increase for the Wickes Corporation.

The increase in price brought about when a split is announced is attributable to several factors. The price of the stock is reduced. This decrease in price will lead to an increase in demand for the stock. Investors speculating on the size of this forthcoming demand, increase the present demand and thus drive the price of the security up. Many investors want to buy the stock when a split is announced in

TABLE VIII

A COMPARISON OF THE CHANGE OF A STOCK'S PRICE, WHEN A SPLIT IS ANNOUNCED, ADJUSTED FOR MARKET FLUCTUATIONS

Company	Last Price Quoted One Week Before Announcement Date	Last Price Quoted on Announcement Date	Increase (Decrease)	% Change Increase (Decrease)	Market Adjustment Increase (Decrease)	% Net Effect % Positive (Negative)
Bristol Myers	105.50	108.125	2.625	1.54	2.04	(.50)
Campbell Soup	114.00	115.00	1.00	.88	.76	.12
Carter Products	75.875	72.125	(3.25)	(4.14)	.38	(4.52)
Catepillar Tractor	59.375	63.375	4.00	6.73	.06	6.67
Chrysler Corporation	93.625	97.125	3.50	3.73	.14	3.59
Consolidated Cigar	72.00	73.50	1.50	2.08	.99	1.09
Distillers Corp. - Seagrams	60.75	61.50	.75	1.23	(.11)	1.34
Dr. Pepper	54.75	56.00	1.25	2.28	.07	2.21
Electric Storage Battery	53.75	55.75	2.00	3.72	2.04	1.68
Falstaff Brewing Co.	39.375	41.625	2.25	5.71	.33	5.38
Gerber Products Company	77.00	82.75	5.75	7.46	(.69)	8.15
Greyhound Corporation	59.25	57.50	(1.75)	(2.95)	.09	(3.04)
Kellogg Company	69.00	72.00	3.00	4.34	(.01)	4.35
Macy (R.H.)	85.50	89.125	3.625	4.02	(.11)	4.13
McCall Corporation	28.75	31.25	2.50	8.90	.99	7.91
Purolator Products	74.00	76.375	2.375	3.20	1.04	2.16
Radio Corp. of America	98.00	97.875	(.125)	(.12)	(.84)	.72
Rexall Drug and Chemical Co.	59.75	59	(.75)	(1.09)	.19	(1.28)
Safeway Stores	72.125	73.375	1.25	1.59	1.61	.02
Sherwin Williams	103.00	105.25	2.25	2.18	(.59)	2.77
Talon, Inc.	44.25	44.00	(.25)	(.56)	.42	(.98)
Trane Company	71.75	73.75	2.00	2.78	.02	2.80
U. S. Plywood	76.625	75.25	(1.375)	(1.79)	.63	(2.42)
Walgreen Company	45.00	48.00	3.00	6.66	1.34	5.32
Wickes Corporation	36.75	43.375	6.625	18.02	1.10	16.92
Youngstown Sheet and Tube Co.	125.375	129.50	4.125	3.29	.38	2.91

order to make a profit on the security either now while other investors clamor for the security, or later when the price is lower and other investors are able to buy. The most opportune time for speculators to purchase a security would be the time period before a split is announced. However, very few people have the capability of discovering this information.

The next best time would be immediately after the split is announced. The usual furor following the announcement will allow the investors who were able to buy in first to take out short run profits. Other factors aside from increased demand which contribute to increased prices are the news of increased dividends, increased growth, increased earnings, increased sales, or other potential good news which is coupled with the announced split. The market grasps this news and then revaluates the worth of the security. Good news will usually lead to a revaluation in a positive direction.

The hypothesis that the announcement of a stock split will almost invariably lead to an increase in the demand for the stock which in turn leads to an increase in price in the short run then is proven to be true from evidence found in Table VIII.

The last hypothesis to be tested is that there is a high probability that a stock split is a factor in facilitating price appreciation for the new securities in the short run. Stock prices on announcement day compared with prices three months after effective split date are given in Table IX. It is observed that nineteen of the twenty-six securities were trading at a higher price after the split compared to prices on announcement date. The price increases varied from .76 points for U. S. Plywood to 7.31 points for Wickes Corporation. Each point is equivalent to one dollar. The mean increase was 3.64 points. Six securities had price decreases. The decreases ranged from .74 points for Trane Corporation to 7.04 points for Carter Products. The mean decrease was 2.79 points.

The prices of the securities three months before split date compared with the price three months after split date are given in Table X. The price of the stock three months before split date is free from much of the influence of increases in price occurring when a split is announced. It can be seen from Table X that twenty-four of the twenty-six securities were trading at higher prices after the split compared to prices before the split. The price increases in Table X ranged from .58 points for Campbell Soup to 10.38 points for Kellogg Company. The mean increase was 4.88 points. This was an average of 1.24 points higher than the mean price increase on announcement date. Most of the increase was due to the fact that the price of the securities three months before effective split date are free from much of the influence of activity occurring when news of the split is announced. Two securities had price decreases. Greyhound Corporation had a decrease of 2.74 points and Carter Products had a decrease of 6.58 points.

The purpose of Table IX is to determine whether prices after the split compared favorably with the increased price attained when the split was announced. The purpose of Table X is to determine whether prices after the split were higher than prices three months before the split. Both Tables IX and X indicate that a majority of the securities had higher prices after the split than on announcement date and prices three months before split date. How much of the increased price is due to the effect of the split is not measurable. The important factor is that a majority of the securities were trading at higher prices after the split. From this, one can infer that there is a high probability that the splitting of a security has some effect on the price level of the security after the split. The effect has proven to be positive in most cases.

TABLE IX

STOCK PRICES THREE MONTHS AFTER EFFECTIVE SPLIT DATE COMPARED TO PRICES ON ANNOUNCEMENT DATE ADJUSTED FOR THE SPLIT

Company	Announcement Date	Three Months After Effective Split Date	Change Increase (Decrease)
Bristol Myers	54.06	59.25	3.19
Campbell Soup	38.33	37.50	(.83)
Carter Products	24.042	17.00	(7.04)
Catepillar Tractor	31.687	35.625	3.94
Chrysler Corporation	48.562	45.625	(2.93)
Consolidated Cigar	36.75	43.50	6.75
Distillers Corp. - Seagrams	30.75	33.75	3.00
Dr. Pepper	28.00	32.375	4.38
Electric Storage Battery	37.07	38.50	1.43
Falstaff Brewing Company	20.81	26.625	5.82
Gerber Products Company	41.37	43.50	2.13
Greyhound Corporation	23.75	23.75	0
Kellogg Company	36.00	42.625	6.63
Macy (R.H.)	44.56	47.75	3.19
McCall Corporation	20.83	23.00	2.17
Purolator Products	25.455	21.50	(3.96)
Radio Corp. of America	32.625	33.50	.87
Rexall Drug and Chemical Co.	29.50	35.375	5.88
Safeway Stores	36.687	39.875	3.19
Sherwin Williams	52.62	55.00	2.38
Talon, Inc.	22.00	25.875	3.88
Trane Company	36.87	36.125	(.74)
U. S. Plywood	37.62	38.375	.76
Walgreen Company	24.00	22.75	(1.25)
Wickes Corporation	21.687	29.00	7.31
Youngstown Sheet and Tube Co.	43.16	46.00	2.84

TABLE X

A COMPARISON OF PRICES THREE MONTHS BEFORE AND AFTER EFFECTIVE SPLIT DATE

Company	Three Months Before Effective Split Date	Three Months After Effective Split Date	Change Increase (Decrease)
Bristol Myers	50.63	59.25	8.62
Campbell Soup	36.92	37.50	.58
Carter Products	23.58	17.00	(6.58)
Catepillar Tractors	29.69	35.63	5.94
Chrysler Corporation	40.69	45.63	4.94
Consolidated Cigar	37.00	43.50	6.50
Distillers Corporation - Seagrams	28.50	33.75	5.25
Dr. Pepper	24.87	32.38	7.51
Electric Storage Battery	36.33	38.50	2.17
Falstaff Brewing Company	19.50	26.63	7.13
Gerber Products Company	39.25	43.50	4.25
Greyhound Corporation	26.49	23.75	(2.74)
Kellogg Company	32.25	42.63	10.38
Macy (R.H.)	42.25	47.75	5.50
McCall Corporation	18.66	23.00	4.34
Purolator Products	24.70	21.50	3.20
Radio Corp. of America	30.92	33.50	2.58
Rexall Drug and Chemical Co.	27.75	35.38	7.63
Safeway Stores	35.62	39.88	4.26
Sherwin Williams	51.62	55.00	3.38
Talon, Inc.	24.37	25.88	1.51
Trane Company	35.25	36.13	.88
U. S. Plywood	33.68	38.38	4.70
Walgreen Company	21.13	22.75	1.62
Wickes Corporation	27.75	29.00	1.25
Youngstown Sheet and Tube Company	40.92	46.00	5.08

CHAPTER V

SUMMARY AND CONCLUSIONS

The paper has endeavored to present a body of evidence that can be used in making decisions concerning stock splits. Due to the limitations of the study, the evidence and conclusions drawn from this manuscript cannot, with complete certainty, be applicable to all cases or to all markets, past, present or future. A large study entailing periods of several years duration and a larger sample could add to and solidify the conclusions brought out in the body of the paper.

Some of the findings brought out in the body of the paper are summarized below:

1. The most widely used split ratio is the two for one ratio.
2. An "optimum price range" which management feels it is to their advantage to have the securities traded in does exist. The range at present is from $20 to $45.
3. The primary motive that corporations have for splitting their stocks is to reduce price in order to facilitate a broader market for their securities.

4. Secondary motives for splitting are:
   a. To prepare for new acquisitions through the use of stock.
   b. To increase dividends without increasing dividend rate.
   c. To prepare for future financing.
   d. To avoid reporting excessively large dividends and earnings.
   e. Moral suasion by the New York Stock Exchange.
   f. Stockholder satisfaction.
   g. Advertising value.
   h. To increase the volume of trading.
5. The announcement of a stock split will almost invariably lead to an increase in the number of shares traded in the security when the split is announced.
6. When a stock is split, a marked increase in the number of shares traded will almost invariably result in the short run. The increase is not necessarily proportionate to the individual split ratio of the security.
7. When a stock is split, the absolute amount of dividends received will almost invariably be increased when news of the split is announced or shortly thereafter.

8. The price of a stock will almost invariably be increased due to an increase in demand when news of a split is announced.
9. There is a high probability that a stock split is a factor in facilitating price appreciation for the new securities in the short run.

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APPENDIX A

A SELECTED LIST OF INDUSTRIAL SECURITIES CONSTITUTING THE SAMPLE

1. Bristol Myers
2. Campbell Soup Company
3. Carter Products
4. Catepillar Tractor
5. Chrysler Corporation
6. Consolidated Cigar
7. Distillers Corporation - Seagrams
8. Dr. Pepper
9. Electric Storage Battery
10. Falstaff Brewing Company
11. Gerber Products Company
12. Greyhound Corporation
13. Kellogg Company
14. Macy (R.H.)
15. McCall Corporation
16. Purolator Products
17. Radio Corporation of America
18. Rexall Drug and Chemical Company
19. Safeway Stores
20. Sherwin Williams
21. Talon Incorporated
22. Trane Company
23. U. S. Plywood
24. Walgreen Company
25. Wickes Corporation
26. Youngstown Sheet and Tube Company

APPENDIX B

A COPY OF THE MAIL QUESTIONNAIRE SENT TO THE TREASURERS OF THE TWENTY-SIX CORPORATIONS IN THE STUDY

March 29, 1965
609 C Bennett Drive
Stillwater, Oklahoma

Treasurer
Company
Address

Dear Sir:

I am a graduate student at Oklahoma State University and am working on a thesis dealing with the motives and effects of stock splits. I would be greatly aided if you would answer the following questions concerning the split-up of your company's stock.

A self-addressed, stamped envelope is enclosed for your convenience. Thanking you in advance for your coorperation, I remain,

Sincerely yours,

John S. Wilcha

1. What was the primary motive that your company had for splitting its stock?

2. What were the secondary motives?
3. When was the split first made public (announcement date)?
4. Was the split a success?

VITA

John Samuel Wilcha

Candidate for the Degree of Master

of Business Administration

Thesis: AN ANALYSIS OF MOTIVES AND EFFECTS OF STOCK SPLITS

Major Field: Business Administration

Biographical:

Personal Data: Born in Yonkers, New York, August 31, 1942, the son of Samuel and Mary Wilcha.

Education: Attended grade school in Yonkers, New York; graduated from Manhattan College Preparatory School in 1956; received the Bachelor of Science degree from Fordham University, with a major in Finance and minor in Philosophy in June, 1960; completed the requirements for the Master of Business Administration degree in August, 1965.

Professional Experience: Had an assistantship in the department of General Business at Oklahoma State University, 1964-1965.

Honorary Organizations: Epsilon Psi chapter of Alpha Kappa Psi.